

(Dr Warden's Prismatic Specula.)

L. A. Wallua Esq
with Dr Warden's Compliments

ON DEAFNESS

AND

DISEASES OF THE EAR.

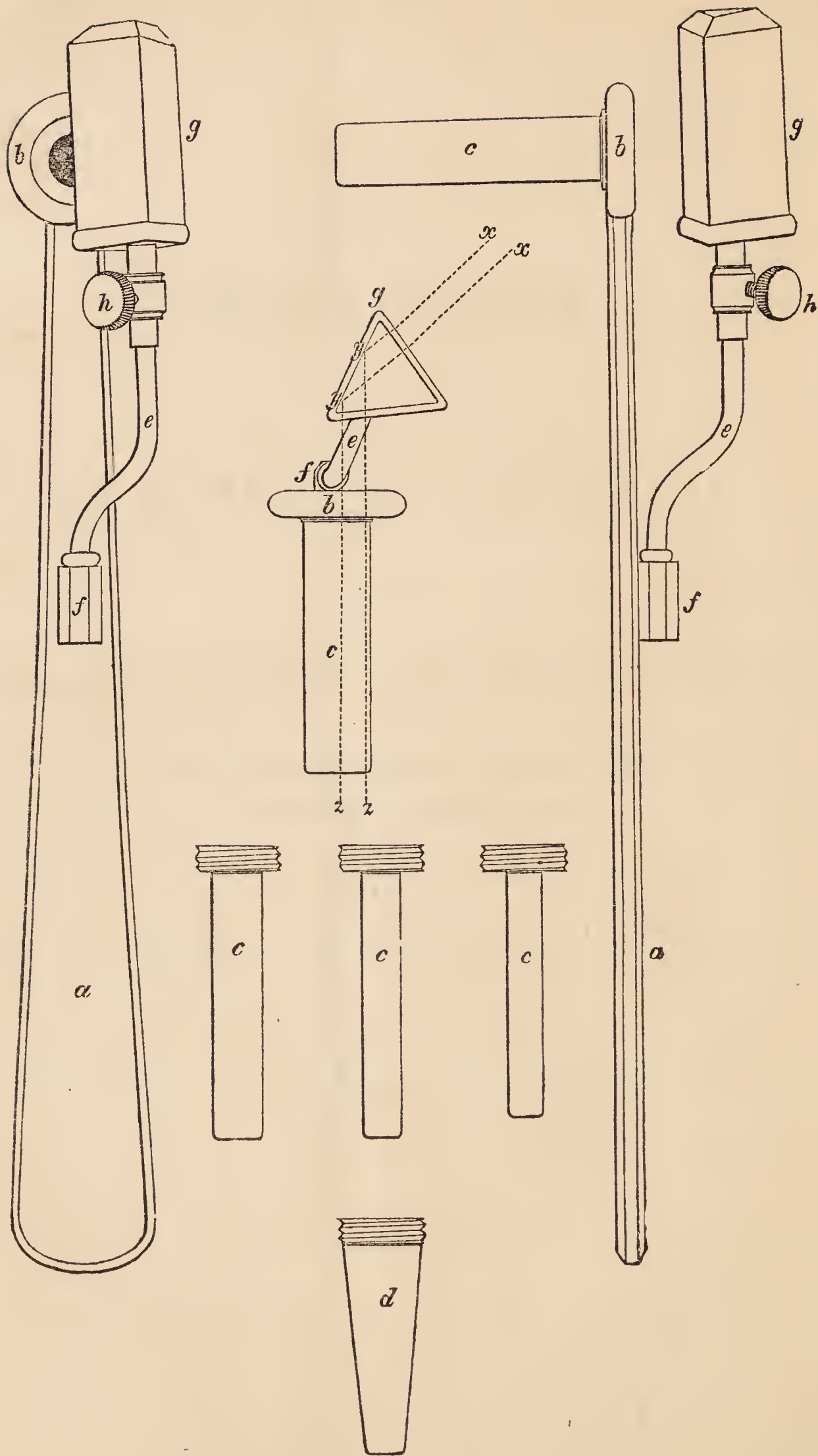
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OBSERVATIONS
ON
DISEASES OF THE EAR;
AND ON
THE IMPORTANCE OF THEIR MINUTE INVESTIGATION,
AS TENDING TO THEIR MORE ACCURATE DIAGNOSIS AND
SUCCESSFUL TREATMENT.

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OBSERVATIONS ON DISEASES OF THE EAR, &c.

THERE is little danger of being misunderstood when we assume inflammation as the starting point of most of the important disease to which we are liable, as well as being that morbid condition over which our art has most power. Yet, this condition is found modified by such a variety of circumstances, constitutional and incidental, or arising from the peculiarity of the part affected, as to demand much discrimination in diagnosis, and to afford scope for varying judiciousness in treatment. There needs some limitation of the adage, that a tyro may dictate the treatment when the disease is known; but to tell what the disease is, "*hoc opus est*," and this difficulty of determining the exact nature of a variety of morbid affections, from which the light is naturally, though not inevitably, shut out, has, to a considerable extent, precluded them from the benefits of improved medical science. Physical investigation has almost perfected our power of determining the state of disease in the lungs; and could remedies be brought to bear as directly as they are suitable, art, if the expression be allowable, would there almost dispute the empire of disease. It were well if the same zeal of observation and precision of diagnosis were applied to several other important regions, namely, the open cavities of the body, the diseases of which we may reasonably conclude are no otherways intractable by art, than from the want of light, and facilities for taking advantage of it by specula so constructed as to be the convenient media of such direct topical applications as circumstances may require.

The object of this communication is confined to some cursory notes of affections of the ear, which have presented themselves to me under the advantage of my prismatic speculum, applicable to this particular region. The other fields of observation through the prismatic specula, invented by me, though more interesting, have not yet afforded me an extent of experience sufficient to be cited at present.

The causes which excite, and the symptoms which characterise simple acute inflammation, are too well marked to escape the observation of the patient, or to be left to pursue their course without check from the usual expedients of art, for the relief of at least the prominent symptoms. But in such important organs as the eye and the ear, the mere arrest of the progress of disease, or its partial removal, is not an issue which affords satisfaction either to the patient or the practitioner; and it is of equal interest to both, that

it should be well understood, that the judicious and timeous employment of treatment affords the only security for preserving these delicate organs under a state of disease; and still more, for recovering them from injury resulting from neglect or malpractice. Acute idiopathic otitis is a comparatively rare affection, and when it does occur, the severity of the symptoms secures the employment of energetic remedies, and the watchful superintendence of the case to a termination. It is in those secondary, and generally subacute and unhealthy forms of disease, which complicate or follow the eruptive or other fevers of childhood, that the disease manifests a more inveterate character and course, becoming in a manner engrafted upon the period of convalescence, and continuing its growth apace with the general restoration of health. Inflammation in the ears seldom, however, terminates in complete resolution; and this is in some measure explained by the peculiar anatomy of the parts; the bony and cartilaginous barriers by which they are in a great measure isolated from the force of the general circulation, equally placing them at a disadvantage for recovering equilibrium with it, when general excitement has subsided. Diseased action, therefore, being once set up, has, by the laws of the system, a tendency to maintain itself, unless counteracted by art. When suitable topical means are employed, a cure is perfected; but if these are neglected, or not adopted until after structural changes have taken place, the nature of which are often only to be conjectured, the suitability, as well as the effect of remedies, must be equally uncertain. The terminations or products of inflammation in the ears present all the diversity which is found to attend in other situations, the intimate complication of so many different tissues. Yet, as before adverted to, the somewhat insular character of disease there, gives origin to well-marked peculiarities, which demand more than ordinary attention and discrimination on the part of the observer, in order to the adoption of such corresponding modifications of treatment as are required. The researches of Mr Toynbee, tending to prove the non-vascularity of cartilage, and of certain tissues of the eye and joints, seem calculated to explain, in some measure, the peculiarities of disease here alluded to.

The high value of numerous modern scientific works which treat expressly of the diseases of the ear, is not more generally confessed than the very extensive prevalence of incurable or uncured disease in those organs. Some other explanation must be sought for this, than is to be found in the mere fallacy of science, or the inaccuracy of these authorities. The fault may be suspected rather to lie with the profession at large, who have not equally laboured in or sought to reclaim this too little cultivated region of disease; and, while those systematic works which are based upon true data will not be displaced in credit by any apparent discrepancy in new observations, it is to be borne in mind, that science is only to be advanced by additional contributions of facts and experiences. I have found and do foresee, that observations practised with the advantage of the

prismatic specula, must give rise to a more exact knowledge of pathological phenomena, and to clearer indications for treatment. Such results as may present themselves to me from time to time, I shall not fail to submit to the profession, whether confirming or seeming to discord from common experience.

Practised observers have remarked, that vegetations in the meatus externus generally indicate a serious disease, involving the cavity of the tympanum. It is not less matter of certain observation with me, that such vegetations are far from affording any conclusive proof of this, such as to warrant a discouraging prognosis, and that this condition is often very evanescent and unimportant, as regards the safety of the organ of hearing. Such vegetations I have been accustomed to see accompanying a catarrhal form of otorrhœa confined to the dermoid investment of the meatus externus, and disappearing as rapidly and completely as the simple affection giving rise to them. This catarrhal inflammation I find reason to regard as among the most common of all the primary forms of disease in the external ear. The symptoms are commonly so slight and temporary at first, as often to escape observation, being attended merely with transient stings of pain and itching; and it is only after the lapse of a week or two, that a degree of deafness may be perceived. If the organ is inspected with the prismatic auriscope, in this the first stage of the disease, the lining of the passage is found dry, its colour heightened by increased vascularity, and the membrana tympani is without the natural glistening moisture of surface which belongs to it. This slight affection disappears, if it have the advantage of being conjoined with general catarrh, which demands confinement and protection from the weather. Should this not be the case, it proves the advanced post of another attack, or an affection more acute from the first, proceeds to tumefaction and relaxation of texture of the cuticular lining of the meatus, which assumes now the character and secretions of a mucous membrane. At this period, the affection may again pause. The attendant discharge, by relieving the deeper and more unyielding portions of the linings and the vessels in the neighbourhood of the membrana tympani, as well as those of that membrane itself, is generally attended with the almost perfect return of hearing. And in those who are subject to such attacks, it is common to find the recurrence of discharge regarded as critical and salutary. This, however, is obviously now a weakened organ; and by the greater capacity of its blood-vessels, it is capable of being the seat, and of affording fuel for the maintenance of the more substantial effects of inflammatory action, such as preternatural nutrition and thickening of the walls of the passage, whereby its dimensions are narrowed, or giving rise to the development of fungoid granulations and polypous growths. These successive steps of disease may proceed without any considerable prejudice to hearing, and without being thought of sufficient importance to be made the subject of medical treatment or advice. It is only when hearing has become seriously impaired, with or

without the presence of pain, that the now aggravated disease is presented for cure. The previous history is overlooked by the patient, and with the imperfect view to be obtained of the state of the membrana tympani, whether it is involved in congestion, or otherwise affected with disease, the surgeon may well feel at a loss, who estimates rightly the importance to the patient of the conclusion he may form. If the membrana tympani is already in a state of arterial congestion, the means which may be calculated speedily to remove the exterior characters of disease, will, with equal probability, aggravate the more important,—the all-important complication. Or, suppose the case to appear in another form, and that the fungoid granulations have been already dispersed through absorption, effected by the use of some nostrum, whose efficacy has also been farther tried by direct application to the membrana tympani itself, whereby more or less opacity and thickening have been unsuspectingly induced: without narrow investigation, and the detection of the real state of matters, the surgeon cannot give a just prognosis of the probability of cure, any more than he is likely to effect it by random applications.

It is important, that it should be better understood than it is, that loss of hearing is a symptom of disease, which does not differ in nature from other symptoms of disease with which medical science is generally conversant. The minds of many, even of the intelligent part of the community, are so prepossessed with the imagined power of empiricism over these organs, as to believe, that every interposition of art, for the relief of their diseases, may, and ought, to operate as a spell, and to afford a complete, if not an immediate cure. The hidden nature, and frequently unsuspected extent of morbid alterations in the ear, suffices to account for the imperfect success which often attends their treatment. By the convenient introduction of light, through the medium of the prismatic auriscope, the minutest visible features of disease situate in the meatus externus, and its termination, are at once detected; and we are enabled to inspect from day to day the changing aspects of the case, to watch the effects of our remedies, and to vary them suitably to circumstances. When neglected or mismanaged disease here is brought under actual observation, there is no room left for surprise that the best directed efforts of art should prove unavailing. Only a small measure of improvement, if any, can be hoped for, where important parts have sustained injury, or where structural changes have been confirmed by time, or the sensibility of the auditory nerve itself is impaired or annihilated. Yet, even when great, and what might be thought ruinous injury, has been inflicted by disease, we find, especially in early life, that a great measure of repair and restoration of function may take place, through the joint influence of time and proper treatment. Such a desirable issue will be attributable partly to the regeneration of lost parts, and in no small degree to the development of mind, and the beneficial exercise of the organ of hearing, solicited by music, and pleasing discourse, and listening to interesting reading.

My experience in diseases of the ear is far from warranting heroic plans of treatment. The import of all that I have seen goes to impress me with the extremely delicate character even of the visible structures of the ear. I have often been struck with surprise and dismay at the rapidity with which the most hopeful changes in the condition of disease have been swept away like a cob-web upon a very trifling variation of the strength of an officinal lotion or ointment, or even a very gentle use of the syringe. So much does this tendency to the development of action reign and manifest itself alike under different circumstances, and upon the application of morbid or medicinal agents, that I am led to regard it as peculiar to the organs in question, or analogous only with the sensibility of the eye itself. However this susceptibility may be accounted for, I have found it very important to be kept in view in practice, and am very uniformly accustomed to make a test of its degree by a preliminary experiment, before determining upon the plan of treatment. Other stimulants may answer the purpose of a test such as I employ, but *iodine* is that to which I give a decided preference; as, besides being a very energetic excitant, it possesses remarkable power as an alterative. By these double properties, healthy action is often at once brought about, and sustained. The object and general effect of the test is, to produce a measure of excitement. This sometimes assumes the character of irritation and inflammation, during the persistence of which, opacity of the membrana tympani, if it had existed before, will often be increased, attended with aggravation of the dullness of hearing. If the stimulant be not too soon repeated, these effects subside, and in the course of the return of the circulation in the parts to the normal state, previous morbid changes, such as chronic or recent opacity, fungi, or indolent ulceration, are frequently found to have given place to healthy action, and a rapidly sanatory process. The personal history and previous treatment materially affect the prognosis and curability of diseases of the ear. When the scrofulous diathesis or the venereal taint is present, they give rise to irregularities and interruptions of healthy processes, such as are only to be controlled by remedies directed to the regulation of the general health; and when the membrana tympani has acquired a leathern density, from the irritation of pungent nostrums, art contends with such a barrier almost in vain. Hereditary delicacy of the organs gives a disposition to diseased opacity of the membranes and paralysis of the nerve, analogous to albugo and amaurosis cataract in the eye; and if the latter affections demand for their proper treatment all the accomplishments of the physician and surgeon, not less do the former require the qualifications of science, integrity, and experience. If I be right in supposing an analogy between albugo and forms of opacity of the membrana tympani, we have the high authority of Scarpa for persevering in the hope of cure; that author observing, when speaking of this form of opacity of the cornea, that it is generally necessary

to persevere at least three or four months before the case can be reckoned incurable. It is not, however, my purpose at present to attempt any general account of diseases of the ear, but merely to draw attention to the advantages afforded by the employment of the prismatic speculum, for throwing light upon the proper nature and treatment of those affections. For the sake of brevity, I shall comprise several points in one hypothetical case. It is common to find a person complaining of deafness whose ears present the following appearances:—The membrana tympani of one side is found entire, and the meatus free from signs of disease. The opposite ear appears moist with discharge, and a mass of soft granulations is seen to occupy the bottom of the passage. A hasty or inexperienced observer would at once conclude, that the ear first noticed was the sound and serviceable one, and that the latter was the seat of the deafness. But it proves otherwise, and more exact inspection discovers morbid appearances sufficient to afford the basis of a more accurate judgment. The membrane which had been judged healthy is preternaturally dry and tense, or it may be opaque, thickened, lax or inelastic, or, again, of ligamentous or horny rigidity. By a narrower examination of the granular mass in the other ear, a minute opening through some part of the pulpy heap is discovered, admitting the passage of sound to the interior partially or entirely sound structures, and so to the sensorium. The condition of the two ears here assumed, does not differ more in appearance than in the character of the disease, and the treatment required for each. A bold stimulus might be the advisable medicament to the dull opaque membrane; but the same application to the more delicate state of disease in the other ear, would probably extinguish the hearing while the *modus operandi* would be involved in greater mystery than before. The case assumed is of common occurrence, and the treatment must often be attended with similar disappointment when sufficient inspection has not been obtained, or the characters of the disease misunderstood.

The more perfect revelation of the diseased states of the ear has been a desideratum up to the present time, and the ingenuity of many eminent members of the profession has been employed to convey light in this direction. These efforts have all been aimed to effect the illumination of the parts by intense light, proceeding from behind, or interposed between the eye and the narrow field of disease sought to be examined; and both of these methods has been found equally unsatisfactory, inasmuch as the shadow of the head intercepts the light proceeding from behind—even the sunlight itself, whilst a light interposed between the eye and the object, dazzles and obstructs all operative procedure. By enlisting the prism as an appendage of the speculum, these disadvantages are entirely obviated. The light being placed on either hand of the observer, is received on a side of the prism, and by internal reflection the direction of the light is conveniently diverted, and poured as in a stream over the edge, and to the bottom, of the

conical tube of the speculum, so as clearly to reveal the nature of disease in the parts, and, at the same time, to leave ample space for the passage of all the instruments required in aural surgery. The amount of light thus attainable need have no limit, while the membrana tympani may be fully inspected with the aid only of a cottage candle; and under all disadvantages and dubiety, the eye may be assisted by a pocket magnifying glass. The cases which have recently been submitted to my treatment have, for the most part, been such as have proved incurable in the hands of others; and while the value of the prism will be ultimately and justly determined by the greater number of cures effected through its employment, the profession, I doubt not, will receive with candour and interest the first fruits of observation by this means, such as my opportunities have enabled me to lay before them. It will be understood, that in the cases cited, the prismatic auriscope was always employed in observation; and if no unfamiliar fact is recorded, it is because no novel peculiarity was present. At the same time, whatever appearance was seen was presented with new distinctness, and the indications of treatment were correspondingly distinct.

The examination of the ears will be more or less satisfactory according to different circumstances. If the meatus is contracted or inflamed, or the convolutions of the cartilages rigid with age, or if the linings are lax and falling into folds before the auriscope, or beset with vegetations, the view of the membrana tympani will be unattainable or inexact. Or, if the exterior passage be without such obstruction, a perforation in a suppurating membrana tympani may escape detection, from the aperture being occupied by a globule of pus,—a source of deception almost inevitable, if the Eustachian tube be at the same time impervious, and preventing the forced emission of air through the aperture. In all circumstances where it can be available, the camel-hair brush is the instrument to be employed to cleanse and unveil the real condition of the parts.

As many of the cases which I shall cite have been furnished by my professional brethren, and their authenticity will thus be recognized, I shall think it sufficient, in the communications I may make, to state cases numerically, instead of giving initials and designations.

CASE 1. —, aged 43, the report of whose case, as still under treatment, appeared in the September number of this Journal, and presented in the sequel farther points of interest. For the sake of connection it is necessary to recapitulate the previous narrative. He had suffered from impaired hearing and disease in both ears from boyhood; and as deafness had been prevalent in his family, it is probable there was a morbid delicacy and predisposition affecting the organs in question. Loss of hearing has progressively increased, notwithstanding the employment of constitutional and local treatment directed by judicious members of the profession. All remedies had been discontinued as hopeless for two years back, and hearing was produced only by bawling as to one on the house-top,—the patient erecting the auricle with his hand to catch every vibration of sound. Upon examination with the auriscope, the cuticular linings of the auditory passages were found blanched and thickened as by maceration, and void of sensibility, so as to allow the separation of flocculent layers from the surface. The right ear transmitted no sound of a watch placed in

contact with it, and on carrying inspection to the situation of the membrana tympani, the bottom of the passage was found occupied by a spongy organized mass protruding irregularly from the chamber of the tympanum; while, in the left ear, a crescent-formed fragment of the drum only remained, and that having a lardaceous appearance, as if quite disorganized and in process of decay. Remedies chiefly directed to the amelioration of the general health were directed and continued for a fortnight, at the end of which some mild local treatment was entered upon, and employed for a like period. Interesting changes in the state of the ear were now displayed by the auriscope, and at same time, the patient expressed high satisfaction that he had been able to join in the psalmody of the church, of which he had previously been incapable,—such was the deficiency of hearing. The fungus seen at first examination, had shrunk to a level within the cavity of the tympanum, while in the left ear, the relict of the membrana tympani formerly seen opaque and unorganized, had lost a little of its superficial area, but what remained had a healthy pinky vascularity and transparency like red jelly. Moreover, the white head and shoulder of the malleus were seen *in situ*; and in connection with this important fragment, although its handle stood in bold outline in the dark chamber of the tympanum. The last printed report of the case bears date 12th August, and I saw the patient three times before leaving home for London on the 21st, at which time I left him to prosecute an energetic course of mineral and bitter tonics, consisting of iodide of iron and quinine with liberal regimen, and with directions to desist from the use of local applications, saving emollients; experience proving to me the importance of retarding action in weak or new structures, in order to give time for their consolidation and permanence. On my return, 13th September, I had the satisfaction to see and hear of his progressive and great improvement. In the left ear, the membrana tympani had not much exceeded its former dimensions, but it had now assumed a more substantial form and texture. In the right ear, the chamber of the tympanum was seen to be still occupied by the same flat dusky growth before mentioned, but which had farther receded in the tympanum, as if undergoing removal by absorption, while to my gratification, the rudiments of a new membrana tympani were distinctly visible. In four successive inspections subsequently, I found the reproduction gradually extending its dimensions, and although of preternatural delicacy of texture, like fine lawn, it had on the 7th October attained to a complete perfection of form.

15th October. The patient reports that he hears distinctly with his right ear the sound of his watch under his pillow, and which he regards as a very satisfactory test of the serviceableness of the new structure, and other changes in the state of the organ. He also mentions that he attended a public meeting the previous evening, and when he missed hearing an expression addressed to him by a stranger with whom he had been conversing, he mentioned that he was deaf, to which the other replied that he had not perceived it. On examination, the new membrana tympani was seen presenting a substantial semi-opacity, at which I am more pleased than disappointed, as thereby an index is afforded of its sufficient organization to secure its permanence.

21st October. He experiences little or no impediment of his business from defective hearing either among his workpeople or customers.

I have not seen him since the above date, but I learn upon enquiry that his improvement continues.

Uncertain although it be, what changes have taken place in the reparation of the middle ear, it is impossible not to found upon such a case the highly important conclusion, that even in circumstances the most adverse and unpromising a great amount of benefit may still be attainable through persevering treatment and exact observation of the effects produced by remedial applications.

CASE 2. —, aged 52, has been deaf for several weeks, which she ascribes to cold in the head. She had at first the usual symptoms of catarrh, with occasional pungent pain in the ears; and although these have been absent for some time, the loss of hearing has increased. On examination of the ears, there appears an abundant accumulation of viscid cerumen, which could not be wholly

dislodged by the syringe without improper irritation; the lining of the passage appearing highly vascular and tender to the touch. The sound of a watch was heard only at five inches distant. Local fomentations and oil were directed for two days with purgatives and diaphoretics. At the next examination, the vascular injection of the ears and tenderness were gone, and the remaining collection of wax was readily removed with the effect of extending the range of hearing to 18 inches. On narrow inspection of the meatus, no abnormal appearance remained there to account for the continued imperfection of hearing. The Eustachian tubes, however, remained obstructed, and this condition was also removed by two days farther perseverance in the general treatment, when hearing was found perfect.

CASE 3. —, aged 23, of scrofulous, unhealthy aspect, has been deaf for five or six weeks, supervening on exposure to cold. There were smart transient pains and tension in the ears for a night or two, but which ceased upon the appearance of some discharge, and again repeatedly recurred. Deafness and constant humming and purring noise, are what he now greatly complains of. There is a muco-purulent discharge from both ears. On examination the right meatus appears soaked with imperfect pus, its lining is loose and infiltrated, and a circle of pale granulations is seen surrounding the membrana tympani, which has a slight dimness. The left passage is in a similar villous and secreting state, and the membrana tympani appears also a little dim.—Ordered to apply a blister to the nape, and a zinc lotion to the ears. After four days the organs presented a nearly healthy appearance, and the hearing was almost perfect. The lotion was directed to be continued, and no more was seen of the case.

It is probable that the disease here was of longer duration than was observed by the patient, and that the cure was neither complete nor permanent. It is no uncommon thing in deteriorated states of the general health, to discover patches of erosion, and deep and extensive ulceration of the mucous membrane of the throat and other cavities, the very existence of which had been unsuspected, even though implicating important organs. To this the ear is no exception,—and all forms of deafness and disorganization there are placed in the one category of loss of hearing, and counted as solved only by its restoration. Greater intelligence and vigilance, both on the part of the patient and practitioner, are necessary to greater success in the treatment of all the more important forms of diseases of the ear.

CASE 4. —. *Sept. 26.*—The right ear has been deaf since an attack of scarlatina two years ago, but the hearing has been farther prejudiced since the use of remedies unskilfully directed. The sound of a watch is heard at five inches distance only. On inspection by the auriscope, the lining of the auditory passage is pale and lax, the membrana tympani has a milky opacity, extending from its margin towards the central most vascular part, where there is a small cluster of vivid granulations resembling a minute wild raspberry. They have a tense irritable appearance, and the character of permanent fungus rather than of true granulation, being without pus or moisture of surface. A mild stimulant, as an expectant application, was employed, and undue excitement was directed to be moderated by fomentation and counter-irritation.

At the 2d examination, the lining membrane appeared slightly injected, tumefied, and tender, so as to prevent the employment of the speculum. There was, however, no increased tinnitus, deep-seated pain, nor tension, and no discharge. Directed to repeat the emollient fomentation occasionally, and to use a mild oxide of zinc ointment on cotton, to protect against atmospheric injury.

3d Examination. Hearing improved, the sound of the watch being heard at eight inches distance. The passage of the ear has in a great measure recovered its tone and compactness; the small fungous growth has shrunk to less dimensions; the condition of the membrana tympani is masqued by a coating of ointment which it is unnecessary to disturb.

4th Examination. Reports that great improvement in hearing is experienced, particularly noticed when last at church. The watch is heard at twelve inches distance. The passage of the ear looks healthy, though still without cer-

umen. The small fungus has disappeared, and the opacity is considerably diminished; the part being no longer delicate, the ointment was brushed from its surface by means of the hair pencil, moistened with the diluted linimentum saponis, and a zinc lotion was directed.

5th Examination. Hears the watch at eighteen inches distance. The membrana tympani presents almost its natural lustre in a minute portion of its central area. Brushed the membrana tympani with a weak iodine lotion, and directed lotio aluminis c. spiritu rosmarini to be applied tepid with a sponge to the whole auricle and neighbourhood twice a-day.

6th Examination. Improvement continues.

7th Examination, *Nov. 12.* Hears the watch equally with both ears at some yards distance. Attendance discontinued.

CASE 5. — has for several years been deaf of the left ear; the history he gives of which is, that he caught cold while journeying outside the mail in the night, and upon using his handkerchief to his nose, and blowing with violence, he was conscious of a sudden sense of bursting, or explosion, in the ear, attended for a little with alarming noise and confusion of head. On reaching home, considerable pain demanded attention to what had happened, and a dossil of cotton moistened with laudanum, was introduced into the ear. The effect of this was greatly to aggravate the pain, and was followed by a night of much restlessness and distress, such as warrants him to caution all against repeating the same application in similar circumstances. From the period of the above occurrence, he has heard very imperfectly with that ear, but a much greater inconvenience is, that it is liable to continually recurring attacks of pain, inflammation, and discharge upon any little exposure to cold or currents of air. When the ear was submitted for my inspection, the membrana tympani was found deficient of one-half of its extent, and the remainder had an irregular, raw, ulcerated edge, while the neighbouring surface had almost a fleshy vascularity. I directed an astringent infusion to be applied with a camel hair brush, and by and bye a zinc solution and ointment, whereby the ulcerated membrane was cicatrised. There has been no subsequent return of discharge, nor inconvenience from cold, and the hearing is considered to be also improved.

CASE 6. —, aged 17, October 22, in a state of imperfect convalescence from fever. He had left his home in Strathspey to follow the harvest-work in the south, and his return had been intercepted by the attack of typhus. Inflammation of both ears had occurred at an early period of the fever, and quickly advanced to suppuration, with great detriment to hearing. Upon examination of his ears, they were found soaked with a highly foetid discharge, on the removal of which both membranæ tympani were seen partially destroyed. The linings of the meatus and tympanum appeared to have a universally oozing surface, and the Eustachian tubes were impervious, probably from a similarly relaxed state of the mucous membrane. He was greatly dejected in mind, on account of what he imagined his hopeless loss of hearing, and his distance from home and friends. He was also in a very debilitated state. I encouraged him to expect that his hearing would improve with the progress of his convalescence. In little more than a week, the reparative energies of youth, aided by food and flannel, had powerfully manifested themselves. The discharge from the ears was diminished, the hearing was somewhat improved, and he was no longer dispirited. A strong astringent gargle and lotion for the ears were now directed, and after the lapse of three days, the passages of the ears were found to have undergone much improvement. The linings had acquired a measure of tension and tone,—the discharge was viscid, and the membranæ tympani, although imperfect and opaque, admitted of a measure of hearing much less obtuse than their appearance would have led to expect. When I had occasion to repeat expressions loudly to him to be heard, he expressed some disappointment; for the previous night he mentioned that he had the happiness to meet with “a Spey lad;” and while he heard his dialect, his deafness was scarcely perceived by either, exemplifying the power of mental influence and pleasurable excitement upon these organs. The following day, the

Stranger's Friend Society provided him with a passage northwards towards his home, and his after progress I have not yet been informed of.

It may be observed, that when inflammation of the ears occurs in the early stage of fever, it is generally destructive in its effects; but when the patient is youthful, and of vigorous constitution, reparation may be both speedy, and beyond expectation complete. The so-called "nervous deafness," which often supervenes on typhus fever, is with much probability to be attributed to the feeble and inharmonious action of the muscular apparatus of the tympanum, exemplified also in the staring undecided gaze, and indistinctness of vision, which convalescents for a time retain.

CASE 7. *Dec. 7.* — has been deaf for several years, occasionally attended with discharge from both ears. He is in the habit of wearing cotton in the meatus to protect against the effects of cold, of which he is very susceptible. The hearing of right ear, which was previously that with which he heard best, has, within these few weeks become gradually more dull, and which gives him great inconvenience and concern. Four days ago the left ear became painful and tense, with much tinnitus, and after two days a profuse discharge of matter took place, with relief from the pain and noise, but followed by nearly total loss of hearing. The auricle and meatus have increased heat and vascularity, and on inspecting the organ with the prismatic auriscope, the membrane of the drum is deficient of half its area, the remaining portion is opaque, and streaked with loaded blood-vessels, while the course of the malleus is marked by a uniform fleshy ridge. On using a forced expiration, with the nose and mouth closed, abundance of matter and bubbles of air rush freely, and with noise through the opening in the membrane. On examining the right ear, a moist glistening septum is seen stretching from the sides of the middle curvature, and whose appearance was at first taken for a false membrane. A sharp-edged scoop was employed with the purpose of removing this impediment, but no part of it could be separated by this means; upon grasping a film of its surface with the forceps, some fibres of cotton were withdrawn; a deeper hold of the mass was then taken, when a blackened plug of cotton wool was slowly extracted against considerable resistance. When removed, it presented a firm mould of the passage, and measured about half an inch in length. The effect of the removal of this stopper, was the immediate restoration of the hearing, to the extent to which it had existed previous to the accumulation of the foreign matter. There being much impairment of structure of both ears, the arrest of disease, or partial restoration of the organs only, is ultimately to be looked for.

CASE 8. *Dec. 18.* — complains of stiffness and uneasiness of left ear, attended with a continued blowing sound and throbbing, synchronous with the pulse, and which increase at night, especially when he sits late reading. These symptoms have been more troublesome during the last three weeks. He feels the cold much on that side of his head, also occasional pain extending to the temple and eye of the same side. Tongue white, and dyspeptic symptoms much complained of. He hears only at a yard distant with the affected ear, yet had not previously been aware of its imperfection of hearing. On inspection with the auriscope, the membrana tympani has a blue opacity, extending over its posterior half, the anterior is broken up into a mesh of loose fibres, stained with blood. Ceruminous secretion deficient.

Such a state of disease of the ear, as is here described, often creeps on imperceptibly. Slight irritation and itching lead the patient to apply a pin or ear picker from time to time, whereby farther irritation and injury is unsuspectingly inflicted, and chronic disease established.

Purgation and regimen directed to regulate the digestive organs, were prescribed, and liniment. saponis applied to the ear.

2d Examination. Hears at three yards distance, and the symptoms complained of diminished. The membrana tympani is found less opaque; ceruminous secretion abundant; evacuations from the bowels reported very unhealthy. The purgatives and liniment continued.

3d Examination. Hearing perfect. Continue the stomachic remedies.

CASE 9. *October 5.* — aged 13. Hearing of right ear has been impaired for two years, originating with an attack of measles. Discharge attended with fœtor is what is most complained of,—a misery to a youth of spirit and gentlemanly nicety which we can easily comprehend. Chlorine, creasote, and other means had been employed at different times, and with temporary advantage; but were soon followed by a recurrence of the complaint. On inspection with the auriscope, the membrana tympani is seen opaque, and overspread with a net-work of minute red vessels, and a small clump of flat granulations occupy its upper and posterior edge. The discharge is said to be sometimes serous and sometimes purulent, marking the stage of transition from the granulating into the fungating membrane. The iodine lotion was directed, and also an irritating embrocation to the neighbourhood of the ear affected.

2d Examination, *October 10.* Reports that he suffered smart burning pain from the first application of the lotion, and there has been increase of discharge, but the latter is so variable as often to increase without obvious cause; and all medicated applications used make it worse, even almond oil. The appearance of the ear is little altered since former inspection. Directed to apply a sinapism to-night, and warm almond oil to be occasionally introduced. Tomorrow the iodine lotion to be reduced in strength.

3d Examination, *October 12th.* Appearance of ear improved; no discharge; the granulations on posterior half of membrana tympani much diminished in size, as well as vividness of colour; opacity less; no uneasiness on moving the auricle. Continue lotion, and a weak zinc ointment to protect from the air.

4th Examination, *October 19th.* No imperfection of hearing is felt; there is no discharge nor moisture on the cotton; no fœtor; the embrocation complained of; it has caused some vesication; auditory passage natural; membrana tympani still opaque, with a sero-purulent moisture on its surface; a single dusky granulation remains on its border. Ordered zinc lotion, gr. j to ʒj, and to continue the ointment and embrocation.

5th Examination, *24th.* The discharge and fœtor have returned. To add grs. xx of laudanum to the lotion to obviate morbid irritability, which appears to have been the cause of the relapse.

6th Examination, *26th.* There has been no return of pain or discharge since last examination, although he has continued the lotion without addition of the laudanum, which was forgotten. He thinks the relapse had been owing to cold after being overheated with exercise. On inspection of the ear, the membrana tympani is of natural transparency and lustre in the centre, but it has still a broad opaque margin. Continue the lotion.

No return of the symptoms has been reported; yet of the diseases of early life which are liable to assume a remittent or intermittent form, none has this peculiar character more than otorrhœa, inasmuch that the changeable atmosphere of the winter season almost baffles our attempts effectually to remedy the complaint. Its most obstinate form, doubtless, is connected with constitutional delicacy; but when this exists, the most trivial disorder of the digestive organs or exposure to cold, insufficient to affect the air passages, or even the excitement of the circulation in youthful sport, may produce a recurrence of discharge after the cure had seemed established. The extreme delicacy and irritability of the organs at an early age, are manifested equally in the effects of remedies; for, while the terms subacute and chronic inflammation denote disease of more or less intensity, such states may persist for a length of time, affecting only the investing membranes, without deranging the radical structure, or much impairing the hearing; yet if a medicament of any acknowledged power be directly applied, its effect is generally that of irritation, the amount of which, as it cannot *a priori* be predicated, is with all the more nicety to be measured and observed.

CASE 10. — had for 18 months suffered from increasing deafness, which had not been alleviated by the employment of able professional attention, which her own family afforded. The history led me to conclude that the case was complicated and obstinate. Erythematic irritation of the auricle had occurred from time to time, attended with serous and filamentous discharge, and it was

presumed that some organic impediment existed in the organs of hearing, aggravated by imperfect general health. I examined the ears by means of Kramer's speculum, which I commonly do before employing my own, and the observation thereby obtained readily led me to conclude that morbid growths occupied the passages of both ears. Upon resorting to the use of the prismatic auriscope, however, and directing a beam of light fully upon the suspected objects, I discovered them to be variegated with bloody specks, flakes of lymph, and cerumen; and on attempting to wash their surface by means of a moistened camel hair pencil passed through the tube of the auriscope, their character was found to be immediately altered, and although tenacious and matted, each succeeding application of the brush left its impression, and I was speedily convinced that the obstructions consisted of compacted pellets of the products of chronic inflammation, and they were accordingly removed with immediate great benefit to hearing, and the remainder of the cure was easy, rapid, and complete.

CASE 11. — aged 20, a native of Sutherland, of strongly marked scrofulous constitution, has had a running from both his ears since he was eight years of age, attended with growing dulness of hearing; but 20 months ago the deafness became complete, after exposure to cold, which induced the symptoms of acute inflammation, with profuse suppuration, and the discharge of hard lumps from the ears. Since that time all his communications with others have been carried on in writing, a channel of intelligence of which happily he has ready command, as well as a power of expression beyond common. In his description he essayed, in no mean terms, *pingere sonum*—the rushing of the wind—the rustling of the leaves,—“and the murmuring main was heard, though scarcely heard to flow.” Having come to Edinburgh in the hope of recovering his lost hearing, he was fondly persuaded that impressions belonging to the sentient nerves were referrible to, and indicative of some feeble power in the proper auditory function. A watch, however, applied to the auricle and to the pericranium, or held between the teeth, gives no sense of hearing, neither do the loudest tones of the voice attract any attention; but what is still more conclusive of the entire abolition of that sense, his own voice is unperceived as giving sound, although he speaks with strong intonation. After washing the auditory passages, which were covered with an abundant slimy secretion, the view of their interior by means of the auriscope gave ample exhibition of the extent of injury inflicted by continued disease. Not a vestige of either of the *membranæ tympani* remained. The chamber of the right tympanum was partially occupied by pale granulations, which were seen immediately to become more vascular, and studded with bloody points on being lightly brushed with a hair pencil. The left tympanum was wholly empty, and its posterior wall was covered with a glairy pellicle, through which the *fenestra ovalis* was distinctly visible. An active seton had been some time in operation in the nape, and had relieved the head of oppression and other uneasy feelings; I therefore ventured on an attempt to alter the diseased surfaces, and to check the discharge, but action habitually morbid manifested itself in fungous granulation, and no benefit resulted.

CASE 12. *October 21.* — aged 26. Began to lose her hearing when about 12 or 14 years of age.—She does not recollect any history of its origin, but her mother and oldest sister are both deaf, and have been so as long as she remembers; she herself has been as deaf as she now is for eight years. The sound of a watch is heard at a distance of $1\frac{1}{4}$ inch from right ear; $2\frac{1}{4}$ from left. The ears have often been the seat of inflammation and discharge.

On examination of the right ear with the auriscope, the *membrana tympani* has a ribbed appearance, its surface presenting a regular vertical arrangement of translucent bands like catgut. Warty slender growths proceed from the different aspects of the passage, so as nearly to shut it up by their bulk, some of them of a pale vascularity, others covered with a white pollen-looking powder. In the left ear, the passage is clear to the *membrana tympani*, which has a moist sero-purulent surface and opacity, with a thick vascular margin; anteriorly a chink appears to separate the attachment of the membrane to the bone; but no air can be blown through upon the usual test.—Applied *lotio iodin*.

25th. Hears with right ear at 3 inches distant; the left ear is not so much improved; but it is so to a small extent,—both passages present increased vascularity, attended with some heat and itching.—Directed to continue the lotion once daily, and to use fomentation in the event of pain occurring. The ears to be carefully protected from cold.

30th. Hears with right ear at $4\frac{1}{2}$ inches; the left ear as before. The vegetations which existed on the walls of the right passage, have entirely disappeared. The vertical bands with which the membrana tympani was overlaid, appear eroded, white, and swollen, resembling in appearance the *pupæ* of the common fly: a small chink is seen in the anterior part of the membrane. The left membrana tympani is rather more opaque than before; its surface is moist but without discharge.

Nov. 6. Has caught cold, and hearing is diminished in both ears to $2\frac{1}{2}$ inches; their linings are considerably injected and tender, preventing the employment of the speculum.—Directed the ears to be stuped with flannel and the vapour of hot water; also counter-irritation with antimonial ointment. :

The catarrhal irritation interrupted the treatment for three weeks, and produced hurtful changes in the condition of the ears and hearing. These effects, however, readily yielded to applications, and on December 6th, she announced her hearing as decidedly improved. The sound of the watch is heard at 5 inches distant. The right membrana tympani presents fleshy interlacing bands like the *columnæ carneæ* of the heart, with glazy and callous well defined outlines. The left membrana tympani moist, and of a dull white. Painted both drums with an ointment of calomel, to be continued.

12th. Hears with right ear at 6 inches, with left at 3 inches. The right membrana tympani presents still the same structure of columnar masses, such as is difficult to reconcile with the improvement of hearing.—Applied solution of nitrate of silver. The left membrana tympani has a distinctly membranous character, all except the line of the malleus which has a fleshy colour and substance.

19th. Hears with right ear at 8 inches, with the left at $3\frac{1}{2}$. The right membrana tympani is more level and regular, the opacity of left diminished. Continue.

The progress was again interrupted for a fortnight by inflammation from cold.

Jan. 2. Hears with the left ear at 8 inches distant,—with right at 14 inches. Spots of pearly lustre and density appear in both membranes.—To use lotio zinc.

5th. Hears with right ear at 24 inches, with the left at 8 inches. Pearly appearances extend to nearly half the superficies of right membrana tympani, the left only partially clouded.

9th. Improvement continues. Thinks she hears as well as there is any occasion for, and feels the benefit to be unspeakable. Attendance discontinued.

It will be observed that the left ear was the most serviceable at the commencement of the treatment, and she says it is with that ear that she best hears the conversation and common sounds, although its sensibility to the sound of the watch is much less than the other. This is to be accounted for, perhaps, from the influence of habit, the sounds received through the left ear have been most habitually listened to, the less vivid sense of the other has been neglected, and so the nerve is torpid except when the attention is specially directed to impressions addressed to it. She is instructed to wear cotton in the left ear, with a view to the greater use and cultivation of the improved and superior sensibility of the right.

(To be continued.)

